REMARKS

Claims 1-22 were pending on the mailing date of the outstanding Office Action (17 February 2006). Claim 1 has been amended to remove aspects of the laser source, and this amendment is not related to the patentability of claim 1. Claims 6, 7 and 15 have also been amended to clarify certain aspect of these claims. Therefore, claims 1-22 are still pending in this application.

In the Office Action mailed 17 February 2006, all of the claims were rejected. More specifically, the claims were rejected on the following grounds:

(A) claims 1-3, 5-11, 13-18 and 20-22 were rejected under 35 U.S.C. § 102 over U.S. Patent No. 5,550,853 issued to Ostler ("Ostler"); and

(B) claims 4, 12 and 20 were rejected under 35 U.S.C. § 103 over the combination of Ostler and U.S. Patent No. 5,901,167 issued to Sukhman et al. ("Sukhman").

A. Response to Section 102 Rejection – Ostler

Claims 1-3, 5-11, 13-18 and 20-22 were rejected under Section 102 over Ostler. Claims 1, 7 and 15 are the independent claims subject to this rejection, and the following remarks address these independent claims separately because they have different combinations of features.

1. Claim 1

Claim 1 is directed toward a laser comprising a laser source, a power source for causing the laser source to generate a laser beam, and a fan for generating an air flow. The laser source and the power source each have an exterior surface. The laser source and the power source are also arranged in an end-to-end series relation along a longitudinal axis such that the fan directs the airflow generally in the direction of the

longitudinal axis to pass first substantially adjacent to the exterior surface of the laser source for cooling the laser source, and then to pass substantially adjacent to the exterior surface of the power source for cooling the power source. Several embodiments of lasers in accordance with claim 1 accordingly have a power source at one end of the laser source such that the power source and laser source are inline with each other along the longitudinal axis.

Ostler discloses an integral laser head and power supply system. Referring to Figures 2 and 4, Ostler discloses a laser head 42 in a plasma tube 50, an anode 60 at one end of the laser head 42, and a cathode 102 at another end of the laser head 42. The laser head 42 produces a beam 12 that passes through an output port 15. Ostler further discloses a power supply heat sink 62 encircling the anode 60 near the end of the laser head 42 where the output port 14 is located. The heat sink 62 is associated with a power supply that is "not shown." (Ostler, column 4, lines 55 and 56.) Ostler further discloses a laser head heat sink 72 positioned circumferentially around the anode end 46 of the plasma tube 50 between the power supply heat sink 62 and the plasma tube 50. Referring to Figure 2, it appears that the power supply heat sink 62 surrounds the laser head heat sink 72 such that they are separated by a small air gap 74. Given the disclosed configuration, the likely location for the "not shown" power supply in Ostler is offset to one side of the longitudinal axis of the anode 60 such that it contacts an outer portion of the power supply heat sink 62.

Claim 1 is patentable over Ostler under Section 102 because this reference fails to disclose or suggest several features of this claim. For example, Ostler fails to disclose or suggest a laser having a laser source and a power source arranged in an "end-to-end series relation along a longitudinal axis." The applicant respectfully submits that Ostler does not disclose that "the laser source and power supply are arranged in an end-to-end relation along the longitudinal axis" as asserted in the Office Action. The power supply in Ostler is expressly "not shown," and it is clear that the likely location for the power supply in Ostler is offset from the longitudinal axis and the end of the laser head 42. First, the

anode 60 is at one end of Ostler's laser head 42 and the cathode 102 is at the other end of Ostler's laser head 42. The anode 60 and cathode 102 are not power supplies because Ostler expressly states that there is a separate power supply. As such, the power supply in Ostler is not shown or described as being in an "end-to-end series relation" along a longitudinal axis at either end of the laser head 42, the anode 60 or the cathode 102. Second, Ostler's power supply is likely located so that it contacts the power supply heat sink 62 such that the power supply would be substantially offset from both the longitudinal axis and the end of the laser head 42. Evidence that Ostler's power supply is offset from a longitudinal axis of the laser head 42 is that the power supply heat sink 62 shown in Ostler (a) surrounds the anode 60 and the laser heat sink 72, and (b) is located at the end of the laser with the output port 14 through which the laser beam is emitted. As a result, the power supply in Ostler would need to be offset from a longitudinal axis at this end of the laser head 42 so that it would not interfere with the anode 60 and/or the output port 14. Claim 1 is accordingly patentable over Ostler under Section 102 because this reference fails to disclose at least this feature of claim 1.

Claim 1 is further patentable over Ostler under Section 103 because a person skilled in the art would not be motivated to modify Ostler to position the laser source and the power supply in an end-to-end series relation along a longitudinal axis. The applicant respectfully submits that it would require a significant reconfiguration of Ostler's device to position a power source in "end-to-end series relation along a longitudinal axis" with the laser source. More specifically, if the power supply was positioned within the power supply heat sink 62 to be in an end-to-end relation with the laser source along a longitudinal axis, then it follows that the anode 60 required to excite the laser and the output port 14 required to direct the laser beam 12 would need to be repositioned. The Examiner has not provided how such a modification could be achieved or that such a modification would provide any benefit to Ostler's laser. The applicant accordingly suggests that such a modification to Ostler would require a significant redesign of Ostler's device for no apparent reason. Therefore, claim 1 is further patentable over Ostler under Section 103.

Claims 2, 3, 5 and 6 are patentable under Sections 102 and 103 over Ostler as depending from patentable independent claim 1, and also because these dependent claims include additional features. Claim 6, for example, further includes a shroud having interior walls that form a single air channel configured to direct the air flow within the shroud in a single direction from the fan along the longitudinal axis to pass substantially adjacent to the exterior surfaces of the laser source and the power source. The airflow in the embodiments of lasers in accordance with claim 6 accordingly moves in a single direction along the longitudinal axis from the fan to the laser and power sources.

In contrast to claim 6, Ostler further discloses a cooling fan 100 mounted to a housing 16 at a location proximate to the middle of the plasma tube 50. In operation, the cooling fan 100 draws air into a space between the housing 16 and the plasma tube 50 such that the airflow makes a 90° turn to the left as it enters the housing 16 to flow around the outside of the plasma tube 50. The airflow then makes at 180° turn to flow across the left-most portion of the laser heat sink 72 around the anode 60 and the power supply heat sink 62. The airflow continues through the plasma tube 50 across additional laser heat sinks 72 in a middle portion of the plasma tube 50 and out through a rear grill 80. The airflow in Ostler accordingly flows from the fan 100 along a tortuous path that initially turns 90° from the fan to flow along one portion of the plasma tube and then turns 180° to flow along the laser head 42. Ostler accordingly fails to disclose or suggest a single air channel configured to direct the air flow within the shroud in a single direction from the fan along the longitudinal axis to pass substantially adjacent to the exterior surfaces of the laser source and the power source as set forth in claim 6.

In light of the foregoing, claims 1-3, 5 and 6 are patentable over Ostler. Therefore, the applicant respectfully requests withdrawal of this rejection.

2. Claim 7

Claim 7 is directed toward a laser having a laser source with a first end, a second end spaced apart from the first end along a longitudinal axis, a laser resonator, a laser

media, and electrodes for exciting the laser media. The laser further includes a power source substantially adjacent to one of the first or second ends of the laser source such that the power source and the laser source are aligned along the longitudinal axis. The laser of claim 7 further includes a cooling fan positioned substantially adjacent to the power source and located in a generally straight line path with the laser source and the power source along the longitudinal axis.

Claim 7 is patentable over Ostler under Sections 102 and 103 because Ostler fails to disclose or suggest several features of these claims. For example, Ostler fails to disclose or suggest a power source that is substantially adjacent to one of the first or second ends of the laser source such that the power source and the laser source are aligned along the longitudinal axis. Ostler further fails to disclose or suggest a cooling fan positioned adjacent to the power source and located in a generally straight line path with the laser source and the power source along the longitudinal axis. The fan 100 disclosed in Ostler is not only offset from the longitudinal axis, but it is also spaced apart from the longitudinal axis near the middle of the laser head 42. Ostler's fan, therefore, is not in a "generally straight line path with the laser source and the power source along the longitudinal axis." Claim 7 is accordingly patentable over Ostler under Sections 102 and 103.

Claims 8-11, 13 and 14 are also patentable under Sections 102 and 103 over Ostler as depending from patentable independent claim 7, and also because these dependent claims include additional features. Therefore, the applicant respectfully requests withdrawal of this rejection of claim 7-11, 13 and 14.

3. Claim 15

Claim 15 is directed toward a laser comprising a laser source, a power source substantially adjacent to the laser source, and a cooling fan at one end of the power source. The cooling fan is adapted for generating an airflow directed in a generally straight

line path with the laser source and the power source for cooling the laser and power sources.

Claim 15 is patentable over Ostler under Sections 102 and 103 because Ostler also fails to disclose or suggest several features of this claim. For example, Ostler fails to disclose or suggest the combination of a cooling fan at one end of the power source that generates an airflow directed in a generally straight line across both the laser source and the power source. Ostler, instead, discloses a cooling fan proximate to the middle of the laser source such that the cooling fan is spaced apart from the power source by a significant distance. Ostler accordingly fails to disclose or suggest a cooling fan at one end of the power source.

Claims 16-19, 21 and 22 are also patentable over Ostler as depending from claim 15 and also because of the additional features in these claims. The applicant respectfully requests withdrawal of this rejection of claims 15-19, 21 and 22.

B. Response to Section 103 Rejection – Ostler and Sukhman

Claims 4, 12 and 20 were rejected under 35 U.S.C. § 103 over the combination of Ostler and Sukhman. In rejecting these claims, Sukhman is cited for the proposition that it discloses cooling fins profiled in a direction along the longitudinal axis of the laser. Sukhman, however, discloses a fan that is offset from the longitudinal axis of the laser and is configured to initially direct the airflow normal to the longitudinal axis of the laser. Therefore, for the reason explained above with respect to claims 1, 7 or 15, the combination of Ostler and Sukhman fails to disclose or suggest all the features of claims 4, 12 and 20. The applicant accordingly requests withdrawal of the rejection of claims 4, 12 and 20 over the combination of Ostler and Sukhman.

C. Conclusion

In light of the foregoing, the pending claims comply with 35 U.S.C. § 112 and are patentable over the cited art. The applicant accordingly requests reconsideration of the

application and respectfully submits that the claims are in condition for allowance. If the Examiner has any questions or believes a teleconference would expedite prosecution of the application, the Examiner is encouraged to contact the undersigned representative at (206) 359-3258.

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Respectfully submitted,

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